The International Journal of Management Education 19 (2021) 100536

Contents lists available at ScienceDirect

The International Journal of Management Education

journal homepage: www.elsevier.com/locate/ijme

Is a favorable entrepreneurial climate enough to become an entrepreneurial university? An international study with GUESSS data

María Paula Lechuga Sancho [a,*], Antonio Rafael Ramos-Rodríguez [a,*], María Ángeles Frende Vega [b]

[a] INDESS (University Institute for Sustainable Social Development). University of Cádiz, Spain
[b] Researcher of the National Research System (SNI), Panamá

ARTICLE INFO

Keywords:
University entrepreneurship
Entrepreneurial climate
Entrepreneurial activity
Entrepreneurial training
GUESSS Project

ABSTRACT

Universities play a key role not only in the generation and diffusion of knowledge but also in the creation of companies. Despite the growing importance of entrepreneurship in universities in modern societies, the research literature examining this phenomenon is still at an incipient stage. Although the relationship between entrepreneurshiporiented training and its transformation into intentions has been well studied, there is an important gap in the study of its impact on final entrepreneurial behavior. Therefore, the aim of this work is to evaluate the potential moderating effect of a climate favorable to entrepreneurship in the university environment on the relationship between entrepreneurship-oriented training and entrepreneurial behavior. For this purpose, a simple theoretical model is proposed that describes these relationships and it is contrasted using PLS techniques at meso level, taking the university institution as the main unit of analysis, addressing in this way the claims of Fayolle and Liñán (2014) and Lortie and Castogiovanni (2015), to understand the phenomenon at this level.

1. Introduction

There is an abundance of empirical evidence of the relationship between the university context and entrepreneurial activity on the part of students (Bae et al., 2014; Sesen, 2013; Zhang et al., 2013). The role of universities is decisive in a knowledge-based economy, as they support the generation, exploitation, and expansion of knowledge through education, research, and entrepreneurial activities (Răulea et al., 2016). Furthermore, they add value to society through the transformation of knowledge into social and economic development (Guerrero & Urbano, 2011).

Bearing in mind that knowledge is fundamentally created and transferred in universities, there have been calls in recent years from both governments and society in general for alternative models in which universities contribute more to regional development through entrepreneurial capital and the promotion of entrepreneurial activities (Gajón-Gómez, 2016, p. 150). Examples of such promotional activities may include providing education in entrepreneurship to improve entrepreneurial intentions among students (Klofsten, 2000); the provision of incubators for new ideas and new businesses (Hughes et al., 2012); as well as mentoring programs and

* Corresponding authors.
E-mail addresses: paula.lechuga@uca.es (M.P. Lechuga Sancho), rafael.ramos@uca.es (A.R. Ramos-Rodríguez), gelenfrende@gmail.com (M.Á. Frende Vega).

https://doi.org/10.1016/j.ijme.2021.100536
Received 29 July 2020; Received in revised form 2 June 2021; Accepted 24 June 2021
Available online 9 July 2021

networking platforms (Nielsen & Lassen, 2012).

Specific training in entrepreneurship is one of the most deeply analyzed determining factors within the field of entrepreneurship (Walter & Block, 2016). In the hope of encouraging entrepreneurship, many universities have developed educational offerings and training courses in this field (Martín et al., 2013; Walter & Block, 2016). This trend is not only fed by the recognition of entrepreneurship as an important generator of economic growth, innovation, and employment (Audretsch et al., 2012) but also by the different sources that affirm that both general and specific education in entrepreneurship can play a vital role in the development entrepreneurs (as it allows students to reinforce their entrepreneurial skills and abilities), as well as increasing the rate of entrepreneurial activity (Hechavarría, 2016; Pittaway & Cope, 2007). In this regard although there is abundant literature that deals with the importance of generating a favorable context for entrepreneurship in universities, there are hardly any empirical studies on the potential impact of certain environmental factors on the relationship between education and the entrepreneurial behavior of universities (Bergmann et al., 2018).

It seems obvious that a general education oriented toward entrepreneurship can be a factor that drives people toward the creation of new companies (Henderson & Robertson, 2005) and that in such cases, the university would have a strong influence on the entrepreneurial behavior of the students (Bandura et al., 2012; Guerrero & Urbano, 2014). However, most studies focus on the influence of the training in entrepreneurship offered by universities on the entrepreneurial intentions of students (Ahmed et al., 2020; Jena, 2020; Sánchez, 2013; Wang et al., 2019), while there are few papers that study the relationship between training and entrepreneurial activity itself, as indicated by the number of students who have recently created a company or are resolutely immersed in the first phase of the entrepreneurial process. Indeed, in their literature review, very recent papers such as Nabi et al. (2017) and Aparicio et al. (2019) highlighted that research on entrepreneurship education in higher education has so far focused primarily on short-term subjective impact measures, such as students' entrepreneurial attitudes and intentions, rather than longer-term ones, such as venture creation behavior and entrepreneurial performance. Both papers note a gap and call for further research to address this shortcoming.

Along these lines, we propose to investigate whether the investment in training geared toward entrepreneurship provided by the university has a positive impact on the fulfillment of its third mission as an "entrepreneurial university."

Similarly, studying the organizational climate is important for understanding behavioral outcomes on both the individual and organizational levels (Huyghe & Knockaert, 2015), as it can affect behavior when viewed as an antecedent. In fact, the entrepreneurial climate has been conceptualized as the set of perceptions of individuals about the degree to which entrepreneurial behavior—such as the search for business opportunities, the development of new business ideas, the start-up of a new company, or other types of business conduct (Bergmann et al., 2018)—is encouraged, rewarded, and supported in the university environment (Patterson et al., 2017; Patterson & Mavin, 2009). In this regard, Goetz and Freshwater (2001) suggested that climate may be an important factor in stimulating entrepreneurial activity. Franke and Lüthje (2004) found empirical evidence of the positive influence of the entrepreneurial climate on students' entrepreneurial behavior, although, due to its shared nature, the organizational climate is an attribute of organizations or subunits of organizations rather than of individuals (Glick, 1985).

In this context, and heeding the call by Nabi et al. (2017) for the urgent need to examine the moderating effect on the relationship between training and entrepreneurial behavior across other subjects, the aim of this paper is to explore the impact of the perception of having received a general training oriented toward entrepreneurship on the entrepreneurial activity of the university and the moderating effect that this climate could have on the aforementioned relationship. The entrepreneurial activity of the university will be conceived of as a combination of the percentage of nascent entrepreneurs, entrepreneurs, or self-employed workers in active employment, and a measure of the intentions of becoming an entrepreneur in the future among students at these universities. In this way, we are contributing to the identified gaps in both literatures.

To this end, a parsimonious theoretical model adapted from the eclectic model proposed by Guerrero and Urbano (2012) and adapted by Gajón-Gómez (2016, p. 150) is proposed that includes both the entrepreneurial climate of the university as a variable capable of affecting the direction and/or strength of the relationship between the independent variable and the dependent variable, and the type of economy in which the universities in the sample operate as control variables.

Unlike other empirical studies in this field, and in response to the demands of Fayolle and Liñán (2014) and Lortie and Castogiovanni (2015), this is one of the few pieces of research in this field that uses the university itself as a unit of analysis, thanks to the scope of the GUESSS Project data.

The rest of the work is structured as follows. Next, the conceptual framework and the research hypotheses are presented; the following section describes the sample, measurement variables, and methodology followed for its development; and, finally, the results, discussion, and main conclusions are where the implications for theory and practice, main limitations of the study, and suggested future lines of research are developed.

2. Theoretical framework and hypothesis

Most research on university entrepreneurship focuses on micro-level explanations of entrepreneurial intentions related, for example, to the role of cognition and emotions or students' behavioral responses such as effectiveness. However, there are increasing calls to study not only intentions but also actual entrepreneurial behavior (Lortie & Castogiovanni, 2015) and it is recognized that entrepreneurial behavior must be interpreted in the context in which it occurs (Welter & Smallbone, 2011), as it greatly affects the personal decision to set up a company.

Although traditionally the research literature has taken the theory of human capital as the most effective approach to linking education in entrepreneurship to intentions of entrepreneurship (Becker & Tomes, 1986), in exploring the main environmental factors

in the university that determine the creation of new companies by students, the institutional theory is a suitable framework for understanding how the university context affects the entrepreneurial behavior of its students (Oftedal et al., 2018; Pacheco et al., 2010). Entrepreneurial career choice may be influenced by how students perceive entrepreneurship to be legitimately accepted at university (Oftedal et al., 2018).

In their traditional conception, universities tend to be broad organizations that, by their nature, are not very entrepreneurial in their approach. However, incorporating entrepreneurship into their mission could change the perspective of higher education institutions. (Kirby et al., 2011). Generally, teaching and research have been considered the only two missions of the university. However, universities that wish to promote the generation of new businesses, and thus fulfil their third mission (Etzkowitz, 2004) are making internal transformations to adapt to the new requirements of society and provide legitimacy to the choice of entrepreneurship as a professional outlet (Hughes et al., 2012).

An institutional element within the university that will probably have a strong effect on entrepreneurial behavior is the cognitive dimension (Oftedal et al., 2018), referring to current knowledge and skills and potential access to them. In this sense, courses dedicated to raising awareness of the importance of entrepreneurship and advising students (Rasmussen & Borch, 2010). Thus, universities in a large number of countries have changed their strategic behavior and increased their educational programs in entrepreneurship (Martín et al., 2013) to take advantage of these synergies and become what Etzkowitz et al. (2000) call the "entrepreneurial university." This kind of university is characterized, among other factors, by its members having greater probability of becoming entrepreneurs and, in addition, of following an entrepreneurial pattern at an organizational and contextual level (Guerrero & Urbano, 2012).

According to 2015 data from the Global Entrepreneurship Monitor (GEM) report, education is ranked first among conditions favoring entrepreneurial activity in Spain (Peña et al., 2016). This is why, according to Franke and Lüthje (2004), the university education system must provide an academic environment conducive to the development of new generations of business founders, as training in entrepreneurship increases the possibilities of developing the knowledge, skills, and attitudes to transform ideas into action (Zollo et al., 2017).

Likewise, in the academic sphere, there has been a profusion of studies and meta-analyses analyzing the effects of such programs on entrepreneurial intentions and behavior (Bae et al., 2014; Martín et al., 2013; Raposo & Paço, 2011). While most of these studies seem to conclude that there are important relationships between education, business creation, and entrepreneurial performance, as well as between entrepreneurial education and entrepreneurial activity (Raposo & Paço, 2011), the results are not entirely conclusive (Weber et al., 2009) because, among other reasons, they have not taken advantage of more advanced statistical techniques such as structural equation models (Duval-Couetil, 2013; Rideout & Gray, 2013).

In this context, education seems important for stimulating entrepreneurship for several reasons (Reynolds et al., 1999). First, education provides a sense of autonomy, independence, and trust. Second, it makes people aware of alternative career options. Third, it broadens horizons, making students better prepared to perceive opportunities, and, finally, education provides knowledge that can be used to develop new business opportunities. Therefore, it is not surprising that many previous investigations have determined the positive effects that the formative context has on entrepreneurial behavior by contributing to the creation of companies (Charney & Libecap, 2000; Dahlstrand & Berggren, 2010; Dumas, 2001; Holmgren et al., 2004; Kolvereid & Moen, 1997; Osborne et al., 2000; Van der Sluis et al., 2005). Also, Davidsson and Honig (2003) found that a large proportion of the nascent entrepreneurs in their sample had received education in this field, while those entrepreneurs who had not received any previous training were a minority.

Based on the foregoing, we believe that entrepreneurial knowledge derived from a general training oriented toward entrepreneurship, whether tacit or explicit, has a positive impact on behavior (Sommer & Haug, 2011) and, therefore, that it is reasonable to expect that:

H1. The perception of having received a general training oriented toward entrepreneurship has a positive effect on business activity in the university environment.

In addition to specific training as an institutional factor used by universities to legitimize entrepreneurship among their students, Oftedal et al. (2018) show that the normative dimension of universities has a positive impact on the entrepreneurial behavior of their students. In other words, the existence of values, culture, or climate favorable to entrepreneurship legitimizes students towards entrepreneurship as an additional professional outlet. In this regard, the identification and exploitation of business opportunities at universities require a supportive climate to promote the drive for innovation and entrepreneurship among all members.

Given the importance of the entrepreneurial climate in entrepreneurship, more universities are allocating resources (financial, human, physical, and other) to create and maintain it (Kulicke, 2014). This entrepreneurial environment is shaped and reflected in various ways (Bergmann et al., 2018; Schneider et al., 2017). In line with the above, O'Shea et al. (2007) observe that some universities are adopting flexible organisational structures and innovative forms of governance that decrease bureaucracy levels to facilitate interaction with the innovative ecosystem of the territories where they are located.

Universities are also developing instruments and mechanisms to support the creation of enterprises by their university community and society as a whole. These include the creation of business centers, incubators, and research results transfer offices, among others (Guerrero et al., 2016).

Likewise, universities carry out awareness-raising activities supported by the experience of entrepreneurs, which provide an understanding of how to translate the idea into action, and motivate to move from the intention to the creation of new ventures (Anderson, 2011). This also includes the organization of events and competitions within universities on ideas and business models or plans, among others, which motivate students to tap into the opportunities they have previously identified (Belwal et al., 2015).

Incubators and science parks serve as a link between the entrepreneurial intention and the desire to set up the company. In this regard, students are supported to take action. To tis end, they are not only provided with the knowledge, skills and attitudes needed for

entrepreneurship, but are also supported in the validation of their business ideas, in the search for funding, in the creation of networks, in accessing resources and in the presentation to investors, as well as obtaining seed capital through calls for proposals from public or private organizations (Anderson, 2011; Mutsuddi, 2012).

Being exposed to such institutions and observable symbols can influence the perception of the entrepreneurial climate (Geissler et al., 2010). In this context, Bergmann et al. (2018) suggest that the degree to which entrepreneurship is supported by the institution is positively related to the entrepreneurial business climate.

In this regard, it is not strange to think that the organizational climate could affect the direction and/or strength of the relationship between the entrepreneurship training on offer and entrepreneurial activity. Therefore, extrapolating this idea to the university environment, we can put forward the following two hypotheses:

H2. The relationship between the perception of having received entrepreneurship-oriented training and entrepreneurial behavior at the university level will be positively moderated by a climate favorable to entrepreneurship.

However, research on the entrepreneurial climate in universities is still in its incipient stage (Bergmann et al., 2018). Thus, there is insufficient evidence to determine whether the effect of the entrepreneurial climate of universities on business creation is indirect (as hypothesized above) or whether the relationship is direct. In the German context, Geissler et al. (2010) analyzed the factors that influence the entrepreneurial climate at universities and call for studies analyzing the relationship between the climate and students' entrepreneurial behaviour. Bergmann et al. (2018) discuss aspects of the university that may have an impact and implicitly point out that higher education institutions with an appropriate environment for entrepreneurship are more likely to generate entrepreneurial capital.

As Baum and Locke (2004) point out, the individual's propensity to act entrepreneurially starts with motivation, which in turn is a function of the individual's innate personality and the work context in which he or she operates (Birkinshaw, 1999). Thus, for an innovative environment to flourish, the main objective of entrepreneurship is to develop the entrepreneurial spirit within the boundaries of the organization (Sebora et al., 2010). The essence of Birkinshaw's (1999) definition is that entrepreneurship, like any other behavior, is a function of the environment in which it occurs.

Just as individuals do not exist or act in isolation, they also take environmental conditions into account in their decision-making processes. When students perceive their environment—including the university—as being supportive of entrepreneurship, they are more likely to create a new venture (Schwarz et al., 2009). In contrast, when they observe an environment that is hostile to company founders, they may be less willing to become entrepreneurs, regardless of their attitude to self-employment.

Based on the above, the following hypothesis is proposed:

H3. A climate favorable to entrepreneurship will have a positive impact on entrepreneurial activity in the university environment.

The above relationships are shown in the following theoretical model (Fig. 1):

3. Methodology

3.1. Sample and data

The survey used to test our theoretical model (Fig. 1) comes from the 2016 edition of the GUESSS (Global University Entrepreneurial Spirit Students' Survey)[1] project, in which more than 1000 universities from over 50 countries participated. To increase the reliability of the results, only those universities with more than 400 responses were included, meaning that 79 universities were used in the end. For the measurements, an average was calculated of the responses to each of the items belonging to the different constructs. In addition, it was found that no variable studied required a change of scale. Multiple indicators were used based on the evaluation of statements with a seven-point Likert scale.

In addition, the universities were grouped by the type of economy of the country to which they belong, using the criteria of Porter et al. (2002) to distinguish between "factor-driven economies," "efficiency-driven economies," and "innovation-driven economies." Table 1 shows a simple descriptive statistic of the observations.

Following the methodological recommendations of Hair et al. (2017), the theoretical model was contrasted with the use of partial least squares structural equation models (PLS-SEM).

The choice of PLS models is due to the following reasons: (1) The sample size ($n = 79$) is small due to the nature of the study and the observed variables. In this sense, according to Reinartz et al. (2009), PLS is the most appropriate technique when the number of observations is less than 250. (2) This study is oriented toward the prediction of dependent variables (Chin, 2010, pp. 83–97). (3) In comparison with the covariance-based approach, PLS presents a series of advantages in terms of the estimation of interaction effects (Chin et al., 2003). (4) This research defines the nature of most theoretical constructions as they are defined and is, therefore, based on a composite measurement model with a reflective design approach (Mode A), which means that there are correlations between indicators and dimensions (Henseler, 2014). Mode A is the recommended option for out-of-sample prediction for sample sizes greater than 100 (Becker et al., 2013).

SmartPLS 3.0 software was used to perform the analysis (Ringle et al., 2015). The evaluation of the model was carried out in three

[1] The Global University Entrepreneurial Spirit Students' Survey (GUESSS) is a large, global research project about students' career choice intentions worldwide (available at: www.guesssurvey.org).

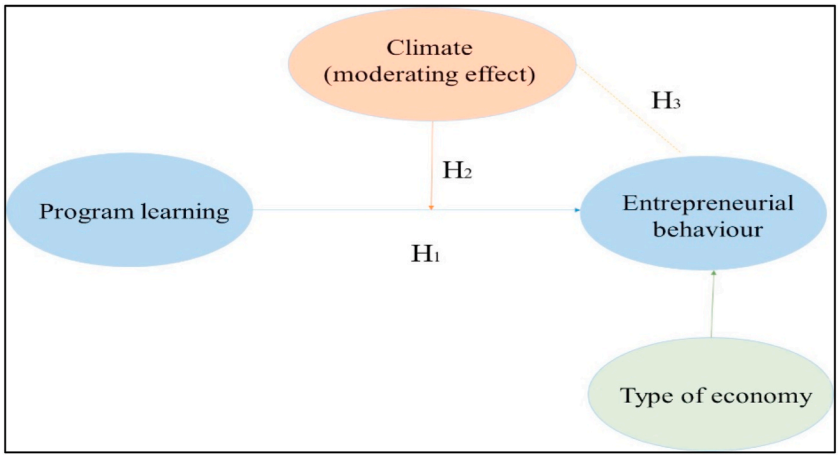

Fig. 1. Theoretical model.
Source: Own elaboration

Table 1
Descriptive statistics.

	Number	Percentage
Type of economy		
Factor-driven economies	1	1.3
Efficiency-driven economies	38	48.1
Innovation-driven economies	40	50.6
University		
Europe	52	65.8
America	23	29.1
Asia	2	2.5
Africa	1	1.3
Oceania	1	1.3

stages: assessment of the global model, assessment of the measurement model, and assessment of the structural model.

Although the parameters of the measurement model and the structural model were estimated in a single step, the recommendations of Hair et al. (2014) were followed to present the results, first evaluating the measurement model and then evaluating the significance of the parameters of the model. In this way, the research is assured of having valid and reliable measurements before drawing conclusions on the relationships between constructs.

3.2. Measures

To measure the learning process, we used the scale developed by Souitaris et al. (2007), which is based on a perception measure that is consistent with the proposition that perceptions of the university environment can be strong predictors of entrepreneurial action. In this context, training is carried out as a university entrepreneurship program that includes a portfolio of complementary activities (i.e., not just an entrepreneurship course). Based on the above, this scale is made up of the following five items: *The courses and offerings I attended increased …* i) my understanding of the attitudes, values, and motivations of entrepreneurs, ii) my understanding of the actions someone has to take to start a business, iii) my practical management skills for starting a business, iv) my ability to develop networks, and v) my ability to identify an opportunity. Each variable was treated on a seven-point Likert scale, from level 1 = "not at all" to 7 = "very much."

However, because there is no generally accepted scale for measuring entrepreneurial climate (Bergmann et al., 2018), we also used the measures previously adopted in research on business climate by Bergmann et al. (2018), Franke and Lüthje (2004), and Geissler (2013). This scale also uses indicators with a 7-point Likert scale and is composed of the following items: i) the atmosphere at my university inspires me to develop ideas for new businesses, ii) there is a climate favorable to becoming an entrepreneur at my university, and iii) at my university, students are encouraged to engage in entrepreneurial activities.

The entrepreneurial behavior of the university was measured through the entrepreneurial activity observed at the university, and this was conceived of as a composite of the percentage of nascent entrepreneurs, entrepreneurs, or self-employed workers in active employment, and those at these universities with the intention of becoming an entrepreneur.

Finally, for use as a control variable, universities were classified according to the type of economy of the country to which they belonged according to criteria developed in previous studies, such as those by Ferreira et al. (2017) and Galvão et al. (2017).

3.3. Data analysis

3.3.1. Global model

According to the recommendations of Henseler et al. (2016), the overall goodness of fit of the model is the starting point for its evaluation. Although we are going to use the PLS algorithm which does not require a global model analysis at this point, the analysis was carried out with the SRMR fit measurement, which indicates that it is a good fit of the model because its value (0.148) is below the maximum imposed by Hu and Bentler (1998) of 0.08. Moreover, testing confirmed that the value is the same for both the saturated and estimated model.

After verifying the correctness of fit of the global model, the measurement model was analyzed to ensure that the model has valid and reliable measurements.

3.3.2. Measurement model

Having compounds estimated in Mode A, PLS evaluates measurement models taking into account individual item reliability, construct reliability, convergent validity, and discriminant validity (Hair et al., 2011). First, the individual reliability of the items is assessed by analyzing standardized loads. In our research, as shown in Table 2, all indicators meet the minimum of 0.707 required by Carmines and Zeller (1979). However, some researchers believe that indicators with loadings between 0.4 and 0.707 should not be dropped if they do not pose problems for the other stages of the measurement model. One indicator corresponding to the variable Education has been removed in our study so that the requirement of discriminant validity can be met.

As for the reliability of the construct, it was analyzed by means of two internal resistance measures: Cronbach's alpha and composite reliability (Hair et al., 2011). The values obtained for each of the constructs belonging to the study are higher than the threshold of 0.8 or 0.9 for advanced phases of research proposed by Nunnally and Bernstein (1994) (Table 2).

Convergent validity was demonstrated by the average variance extracted (AVE) (Henseler et al., 2009), and testing confirmed (Table 2) that each construct explains at least the 50% of the variance of the assigned indicators (Fornell & Larcker, 1981).

In Table 3, we analyzed the discriminant validity or the degree to which a given construct is different from other constructs, using the HTMT ratio developed by Henseler et al. (2016). Our study also includes the Fornell and Larcker (1981) criterion which, although it has shortcomings such as only working well with large samples and heterogeneous loading patterns, is added because we found it interesting to present the correlation matrix.

As we can see in Tables 3 and 4, all four constructs show discriminant validity, so the results confirm the reliability and validity of the measurement model.

3.3.3. Analysis and results of the structural model

In order to assess the magnitude, sign, and significance of the relationships between the variables, bootstrapping techniques were applied to obtain 5,000 samples without replacement of the same size as the original. In addition to the above, the predictive power of the model was analyzed by means of the endogenous variables' determination coefficient (R^2). Finally, Cohen's tables (1988) were used to assess the size of the effects.

In view of the results (Table 5), Hypothesis 1 is supported, so it can be stated with a 95% confidence level that education positively influences behavior (beta = 0.510; IC[0.257; 0.721].

Conversely, we found no empirical evidence of the direct impact of university climate on entrepreneurial behavior, as formulated in Hypothesis 3 (beta = 0.148, CI [-0.056; 0.387]), but it does moderate and clearly reinforces the positive relationship between education and behavior (beta = 0.152, CI [0.060; 0.267]), as expected by Hypothesis 2. This moderating relationship has been contrasted using the orthogonalization technique, which eliminates the possible implied correlation of the term moderator, following the recommendations of Henseler et al. (2016).

Table 2
Measurement model assessment.

Construct/Indicator	Loadings	CR	ρA	AVE
Learning Program (Composite, Mode A)		0.982	0.980	0.917
prog_learn_1	0.967			
prog_learn_2	0.977			
prog_learn_3	0.978			
prog_learn_4	0.916			
prog_learn_5	0.949			
Climate (Composite, Mode A)		0.988	0.987	0.964
climate_1	0.973			
climate_2	0.991			
climate_3	0.981			
Entrepreneurial Behaviour (Composite, Mode A)		0.964	0.955	0.868
founder	0.945			
intent_med	0.930			
nascent	0.920			
TEA	0.933			

Note: CR: Composite reability. ρA: Dijkstra-Henseler. AVE: Average variance extracted.

Table 3
Discriminant validity, Fornell and Larcker.

	Learning Program	Climate	Entrepreneurial Behaviour	EconomicType
Learning Program	0.958			
Climate	0.879	0.982		
Entrepreurial Behaviour	0.838	0.739	0.932	
Economic Type	−0.614	−0.442	−0.701	1.000

Note: For discriminant validity, diagonal elements should be larger than off-diagonal elements.

Table 4
Discriminant validity, HTMT.

	Learning Program	Climate	Entrepreneurial Behaviour	Economic Type
Learning Program				
Climate	0.897			
Entrepreneurial Behaviour	0.865	0.762		
Economic Type	0.623	0.443	0.711	

Notes: Diagonal elements (bold) are the square root of the variance shared betweenthe constructs and their measures (AVE). Off-diagonal elements are the correlationsamong constructs. For discriminant validity, diagonal elements should be larger thanoff-diagonal elements.

Table 5
Structural model.

	Baseline model		**Model with interaction**		**Support**
	$R^2 = 0.763$		$R^2 = 0.786$; $f^2 = 0.107$		
	Path coefficient	CI	Path coefficient	CI	
H1: Learning Program -> Entrepreneurial Behaviour	0.510 (4.288)	[0.257; 0.721]	0.529 (4.548)	[0.280; 0.740]	Yes
H2: Learning Program x Climate -> Entrepreneurial Behaviour			0.152 (2.381)	[0.060; 0.267]	Yes
H3: Climate -> Entrepreneurial Behaviour	0.148 (1.313)	[-0.056; 0.387]	0.141 (1.266)	[-0.072; 0.370]	No
Control variables					
Economic Type	−0.322 (5.160)	[-0.448;-0.204]	−0.300 (4.723)	[-0.427;-0.175]	Yes

Note: CI: Percentile confidence interval. Bootstrapping based on n = 5,000 subsamples. Hypothesized effects are assessed by applying a two-tailed test for t Student distribution (CI 95%). Effects from control variables are assessed by applying a two-tailed test (CI 95%).

Finally, the magnitude of the moderating effect was analyzed by comparing the coefficient of determination (R^2) of the basic model that excludes the term interaction with the model that includes it (Chin, 1998), using Cohen's tables (1988). Thus, it can be observed that the coefficient of determination of the basic model is 0.763, so it is a fairly good predictive model according to the values of Chin (1998), and that the interaction effect according to Cohen (1988) is 0.107, so there is a medium-to-low moderating effect of climate with respect to the relationship between education and behavior (Table 5).

4. Conclusions

There has always been an interest in understanding the determinants of entrepreneurial intentions and the mechanisms that transform them into entrepreneurial activity in research on entrepreneurship. To comprehensively address this issue, numerous models and theories have been developed, taking into account both individual and environmental factors. To empirically test many of these models, samples of students' opinions have often been used (Lortie & Castogiovanni, 2015).

In this context, the main objective of this study was to explore the impact of a favorable climate for entrepreneurship on entrepreneurial activity at the university level. After reviewing the theory, we noted the possibility that it might directly affect entrepreneurial activity and that it plays a moderating role in the relationships between entrepreneurial activity and its antecedents. Among these antecedents, we observed some consensus in the literature that entrepreneurship-oriented education is one of the main predictors of entrepreneurial intentions and activity (Ahmed, Chandran & Klobas, 2020; Bae et al., 2014; Cui et al., 2019; Holmgren et al., 2004; Kolvereid & Moen, 1997; Dahlstrand & Berggren, 2010; Franke and Lüthje, 2004; Martín et al., 2013; Osborne et al., 2000; Raposo & Paço, 2011; Sommer & Haug, 2011; Zollo et al., 2017; Zang et al., 2013). Therefore, we have explored the possibility that a favorable climate towards entrepreneurship may or may not intensify the relationship between training and activity, a research question that has not been addressed to date.

On the other hand, there is a claim in entrepreneurship to identify the factors that determine entrepreneurial activity rather than entrepreneurial intentions, and do so at other levels of analysis beyond the individual (Lortie & Castogiovanni, 2015).

With this intention, we have defined a theoretical model that represents the direct relationship of two perceptual variables, entrepreneurial climate, and formal training oriented towards entrepreneurship, on university entrepreneurial activity. In addition, we have added the moderating effect of the climate on the training-activity relationship.

The GUESSS project database provided the opportunity to test the university's model as the unit of analysis. The results of this research confirm the direct relevance of entrepreneurship-oriented training in university students' business decisions to create new ventures. Moreover, it is the first time that an academic study has researched and obtained empirical evidence of this relationship using the university itself as a unit of analysis.

Although student training has been widely studied in the literature when the unit of analysis has been individuals, its impact on the entrepreneurial activity of the university has scarcely been studied. In this context, the results of this work also highlight the importance that entrepreneurship training has on students for strengthening the third mission of universities through the generation of entrepreneurial attitudes and behaviors. In other words, training is positively linked to entrepreneurial phenomena, both at the individual level (students) (Farashah, 2013; Pittaway & Cope, 2007) and at the meso level (university).

In addition to the above, a first analysis of the results shows that the moderating effect of climate is significant in universities; however, there is no direct effect of climate, so it could be said that a university with a good business climate does not generate activity on its own, although, as has already been said, training does. Moreover, the climate moderates the latter relationship. This result is consistent with Boh et al. (2016) and Miller and Acs (2017), who claim that the governance of universities' entrepreneurial ecosystems contributes to the promotion of entrepreneurial action among faculty and students. We have not found empirical evidence that this is a direct effect. Instead, the climate has a catalytic impact on the transformation of the training received into entrepreneurial activity.

In general, this work contributes to the research on the entrepreneurial phenomenon and, more specifically, to the field of study of the entrepreneurial university. Although entrepreneurial behavior at the individual level as a dependent variable has been widely studied, the entrepreneurial activity of the university is an unexplored field (Fayolle & Liñán, 2014). Along these lines, this work not only contributes to the knowledge of the variables that affect the rate of entrepreneurial intention in the university but also proposes a measure of it.

In addition to the above implications for entrepreneurship research, a number of practical implications may arise for the university community, managers, and society in general.

On the one hand, universities' role in today's society goes beyond the creation of spin-offs or the transfer of knowledge to the market. The mandate is also to contribute to entrepreneurial capital, providing students, and society, with the knowledge and skills necessary to create and develop their own entrepreneurial projects (Audretsch, 2014). It is, therefore, important to know which are the determinants that strengthen the entrepreneurial capital that arises from universities.

In line with the above, this work has made it possible to analyze, on the one hand, the incidence of general training in entrepreneurship received by university students and, on the other hand, the entrepreneurial activity (behavior) of the university. Achieving entrepreneurship-oriented education requires the inclusion of this subject in the curricula of all degree programs, not only in those related to management, and involving teachers and academic leaders in its development. This relationship will intensify if there is a favourable climate and allow universities to make more efficient use of the investment made in implementing entrepreneurial orientation in their classrooms.

On the other hand, building a favorable climate for entrepreneurship in universities takes time. It must therefore be approached from a strategic perspective. Universities should integrate the climate as part of the mission in their strategic plans to involve all their members in a new approach based on the contribution of entrepreneurship to society through scientific knowledge and technology. Including the improvement of the entrepreneurial climate in strategic plans implies developing a comprehensive system of indicators to measure it. The information to construct these indicators can come, for example, from the periodic surveys that universities usually carry out with their students to evaluate the quality of the teaching received. But also, from other indicators such as the number of spin-offs created, the number of patents, the funding committed, the number of contracts or collaboration projects with companies for the development of new processes, products or markets, the existence of incubators or even the volume of scientific production published in the field of entrepreneurship. We are convinced that these indicators will be helpful for strategic decision-making and for regularly monitoring this important strategic variable.

In addition to making an effort in their measurement, universities should improve the visibility of the policies they develop to foster entrepreneurship, selecting appropriate strategies, programs, and communication channels for each of their stakeholders. For this improved visibility to be transformed into a favorable climate for entrepreneurship, it should also be oriented towards improving university-business relations. This would be a means to facilitate opportunity recognition, one of the first stages of the entrepreneurial process.

This paper also has limitations, some of which create opportunities for future research. Firstly, we have measured climate with only three indicators based on student opinions, due to the scale used by the GUESSS project. Given the complex and multidimensional nature of this construct, we encourage other researchers to use second-order constructs, using as first-order variables. For example, the reputation of the university, the relationship with the media, the nature of relations with the business environment, or other variables related to the economic and social environment of each university.

Secondly, to simplify the model and focus on exploring the moderating effect of climate, we have not included the possible indirect effect that training may have on activity through climate at the aggregate level. This is an interesting issue that deserves to be investigated in the future at the university level. It could find a logical explanation for recent work such as Leiva et al. (2021), who have not found a clear relationship between the university environment and entrepreneurial education on the formation of intentions and have suspected the possible existence of mediating effects between explanatory variables in their model.

Finally, we have only taken into account the type of economy of the country as a control variable. We are convinced that other variables are involved in this complex phenomenon. Thus, for example, other variables could be used as control variables to perceive training oriented towards entrepreneurship. Among others, average size of the groups, the average lifespan of the training programs, the percentage of students who receive their training on a compulsory versus voluntary basis, and the average profile of the more

oriented teachers towards research, teaching, or management, etc. This would respond to discussions raised in the literature by Ahmed et al. (2020), Cui et al. (2019); Hahn et al. (2020).

In line with their third mission, universities invest significant resources in a range of activities and programs related to the promotion of entrepreneurship, as well as in infrastructure for incubation and project monitoring. However, there is a concern derived from the principle of accountability about whether it is certain that these efforts will be transformed into results in terms of increasing the entrepreneurial intentions of their students and future graduates, and in the effective creation of companies with high growth potential, as is typical of higher education institutions.

CRediT authorship contribution statement

María Paula Lechuga Sancho: Conceptualization, Formal analysis, Data processing, Methodology, Writing – original draft. **Antonio Rafael Ramos-Rodríguez:** Conceptualization, Data processing, Resources, Supervision, Writing – original draft. **María Ángeles Frende Vega:** Conceptualization, Supervision, Writing – original draft.

Acknowledgements

This research has been partially funded by the University Institute for Sustainable Social Development (INDESS) of the University of Cadiz (Programme of support for publications, editions and scientific events, Ref.: EDI/21/01).

References

Ahmed, T., Chandran, V. G. R., Klobas, J. E., Liñán, F., & Kokkalis, P. (2020). Entrepreneurship education programmes: How learning, inspiration and resources affect intentions for new venture creation in a developing economy. *The International Journal of Management Education, 18*(1), 1–36. https://doi.org/10.1016/j.ijme.2019.100327

Anderson, A. (2011). The university's role in developing Chinese entrepreneurship. *Journal of Chinese Entrepreneurship, 3*(3), 175–184.

Aparicio, G., Iturralde, T., & Maseda, A. (2019). Conceptual structure and perspectives on entrepreneurship education research: A bibliometric review. *European Research on Management and Business Economics, 25*(3), 105–113.

Audretsch, D. B. (2014). From the entrepreneurial university to the university for the entrepreneurial society. *The Journal of Technology Transfer, 39*(3), 313–321.

Audretsch, D. B., Grilo, I., & Thurik, A. R. (2012). Globalization, entrepreneurship and the region. *Scientific Analysis of Entrepreneurship and SMEs, January, 2*(January), 20.

Bae, T. J., Qian, S., Miao, C., & Fiet, J. O. (2014). The relationship between entrepreneurship education and entrepreneurial intentions: A meta-analytic review. *Entrepreneurship: Theory and Practice, 38*(2), 217–254. https://doi.org/10.1111/etap.12095

Bandura, A., Barbaranelly, C., Vittorio, G., & Pastorelli, C. (2012). 21. Self-efficacy beliefs as shapers of Children ? *s Aspirations and Career Trajectories, 72*(1), 1–4. https://doi.org/10.1111/1467-8624.00273

Baum, J. R., & Locke, E. A. (2004). The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth. *Journal of Applied Psychology, 89*(4), 587–598. https://doi.org/10.1037/0021-9010.89.4.587

Becker, J. M., Rai, A., & Rigdon, E. (2013). *Predictive validity and formative measurement in structural equation modeling: Embracing practical relevance*.

Becker, G. S., & Tomes, N. (1986). Human capital and the rise and fall of families. *Journal of Labor Economics, 4*(3), S1–S39. Part 2.

Belwal, R., Balushi, H. y, & Belwal, S. (2015). Students' perception of entrepreneurship and enterprise education in Oman. *Education + Training, 57*(8/9), 924–947.

Bergmann, H., Geissler, M., Hundt, C., & Grave, B. (2018). The climate for entrepreneurship at higher education institutions. *Research Policy, 47*(4), 700–716. https://doi.org/10.1016/j.respol.2018.01.018

Birkinshaw, J. M. (1999). The determinants and consequences of subsidiary initiative in multinational corporations. *Entrepreneurship Theory and Practice, 24*(1), 11–38. https://doi.org/10.1177/104225879902400102

Boh, W. F., De-Haan, U., & Strom, R. (2016). University technology transfer through entrepreneurship: Faculty and students in spinoffs. *The Journal of Technology Transfer, 41*(4), 661–669.

Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity assessment*. Sage publications.

Charney, A., & Libecap, G. D. (2000). The economic contributional entrepreneurship education: An evaluation with an established program. In *Entrepreneurship and economic growth in the American economy*. Emerald Group Publishing Limited.

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–358). Mahwah: Erlbaum.

Chin, W. W. (2010). Bootstrap cross-validation indices for PLS path model assessment. *Handbook of partial least squares*. Berlin, Heidelberg: Springer.

Chin, W. W., Marcolin, B., & Newsted, P. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Inform. Systems Res., 14*(2), 189–217.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Cui, J., Sun, J., & Bell, R. (2019). The impact of entrepreneurship education on the entrepreneurial mindset of college students in China: The mediating role of inspiration and the role of educational attributes. *The International Journal of Management Education*, 1–16. https://doi.org/10.1016/j.ijme.2019.04.001

Dahlstrand, Å. L., & Berggren, E. (2010). Linking innovation and entrepreneurship in higher education: A study of Swedish schools of entrepreneurship. In *New technology-based firms in the new millennium*. Emerald Group Publishing Limited.

Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing, 18*(3), 301–331.

Dumas, C. (2001). Micro enterprise training for low-income women: The case of the Community Entrepreneurs Programme. *The Journal of Entrepreneurship, 10*(1), 17–42.

Duval-Couetil, N. (2013). Assessing the impact of entrepreneurship education programs: Challenges and approaches. *Journal of Small Business Management, 51*(3), 394–409.

Etzkowitz, H. (2004). The evolution of the entrepreneurial university. *International Journal of Technology and Globalisation, 1*(1), 64–77.

Etzkowitz, H., Webster, A., Gebhardt, C., & Cantisano, B. (2000). The future of the university and the university of the future: Evolution of ivory tower to entrepreneurial paradigm. *Research Policy, 29*(2), 313–330. https://doi.org/10.1016/S0048-7333(99)00069-4

Farashah, A. D. (2013). The process of impact of entrepreneurship education and training on entrepreneurship perception and intention: Study of educational system of Iran. *Education and Training, 55*(8–9), 868–885. https://doi.org/10.1108/ET-04-2013-0053

Fayolle, A., & Liñán, F. (2014). The future of research on entrepreneurial intentions. *Journal of Business Research, 67*(5), 663–666. https://doi.org/10.1016/j.jbusres.2013.11.024

Ferreira, J. J., Fayolle, A., Fernandes, C., & Raposo, M. (2017). Effects of schumpeterian and kirznerian entrepreneurship on economic growth: Panel data evidence. *Entrepreneurship and Regional Development, 29*(1–2), 27–50. https://doi.org/10.1080/08985626.2016.1255431

Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*, 30–50.

Franke, N., & Lüthje, C. (2004). Entrepreneurial intentions of business students — a benchmarking study. *International Journal of Innovation and Technology Management*, 269–288. https://doi.org/10.1142/S0219877004000209, 01(03).
Gajón-Gómez, E. (2016). *Antecedents and consequences of entrepreneurial universities: An eclectic model for emerging economies*.
Galvão, A., Mascarenhas, C., Gouveia Rodrigues, R., Marques, C. S., & Leal, C. T. (2017). A quadruple helix model of entrepreneurship, innovation and stages of economic development. *Review of International Business and Strategy, 27*(2), 261–282. https://doi.org/10.1108/RIBS-01-2017-0003
Geissler, M. (2013). *Determinanten des Vorgründungsprozesses*. Wiesbaden: Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-01665-4
Geissler, M., Jahn, S., & Haefner, P. (2010). The entrepreneurial climate at universities: The impact of organizational factors. In D. Smallbone, J. Leitao, M. Raposo, & F. Welter (Eds.), *The theory and practice of entrepreneurship* (pp. 12–31). Cheltenham, UK/Northampton, MA: Edward Elgar Publishing.
Glick, W. H. (1985). Conceptualizing and measuring organizational and psychological climate: Pitfalls in multilevel research. *Academy of Management Review, 10*(3), 601–616. https://doi.org/10.5465/AMR.1985.4279045
Goetz, S. J., & Freshwater, D. (2001). State-level determinants of entrepreneurship and a preliminary measure of entrepreneurial climate. *Economic Development Quarterly, 15*(1), 58–70.
Guerrero, M., & Urbano, D. (2011). The creation and development of entrepreneurial universities in Spain: An institutional approach. In *The creation and development of entrepreneurial universities in Spain: An institutional approach*.
Guerrero, M., & Urbano, D. (2012). The development of an entrepreneurial university. *Journal of Technology Transfer, 37*(1), 43–74. https://doi.org/10.1007/s10961-010-9171-x
Guerrero, M., & Urbano, D. (2014). Academics' start-up intentions and knowledge filters: An individual perspective of the knowledge spillover theory of entrepreneurship. *Small Business Economics, 43*(1), 57–74.
Guerrero, M., Urbano, D., & Fayolle, A. (2016). Entrepreneurial activity and regional competitiveness: Evidence from European entrepreneurial universities. *Journal of Technology Transfer, 41*(1), 105–131. https://doi.org/10.1007/s10961-014-9377-4
Hahn, D., Minola, T., Bosio, G., & Cassia, L. (2020). The impact of entrepreneurship education on university students' entrepreneurial skills: A family embeddedness perspective. *Small Business Economics, 55*(1), 257–282. https://doi.org/10.1007/s11187-019-00143-y
Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Thousand Oaks, CA: Sage Publications Inc.
Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *The Journal of Marketing Theory and Practice, 19*(2), 139–152.
Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review, 26*(2), 16.
Hechavarría, D. M. (2016). The impact of culture on national prevalence rates of social and commercial entrepreneurship. *International Entrepreneurship and Management Journal, 12*(4), 1025–1052. https://doi.org/10.1007/s11365-015-0376-1
Henderson, R., & Robertson, M. (2005). *Education + training emerald Article : Who wants to be an entrepreneur ? Young adult attitudes to entrepreneurship as a career who wants to be an entrepreneur ? Young adult attitudes to entrepreneurship as a career*.
Henseler, J., Dijkstra, T. K., Sarstedt, M., Ringle, C. M., Diamantopoulos, A., Straub, D. W., … Calantone, R. J. (2014). Common beliefs and reality about PLS: Comments on rönkkö and evermann (2013). *Organizational Research Methods, 17*(2), 182–209.
Henseler, J., Ringle, C. M., & Sarstedt, M. (2016). Testing measurement invariance of composites using partial least squares. *International Marketing Review*.
Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. In *New challenges to international marketing*. Emerald Group Publishing Limited.
Holmgren, C., From, J., Olofsson, A., Karlsson, H., Snyder, K., & Sundtröm, U. (2004). Entrepreneurship education: Salvation or damnation? *International Journal of Entrepreneurship, 8*, 55–71.
Hu, L. T., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods, 3*(4), 424–453.
Hughes, K. D., Jennings, J. E., Brush, C., Carter, S., & Welter, F. (2012). Extending women's entrepreneurship research in new directions. *Entrepreneurship Theory and Practice, 36*(3), 429–442.
Huyghe, A., & Knockaert, M. (2015). The influence of organizational culture and climate on entrepreneurial intentions among research scientists. *Journal of Technology Transfer, 40*(1), 138–160. https://doi.org/10.1007/s10961-014-9333-3
Jena, R. K. (2020). Measuring the impact of business management student's attitude towards entrepreneurship education on entrepreneurial intention: A case study. *Computers in Human Behavior, 107*, 106275.
Kirby, D. A., Guerrero, M., & Urbano, D. (2011). Making universities more entrepreneurial: Development of a model. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration, 28*(3), 302–316.
Klofsten, M. (2000). Training entrepreneurship at universities: A Swedish case article options and tools. *Journal of European Industrial Training*, 337–344. https://doi.org/10.1007/s12013-009-9057-4
Kolvereid, L., & Moen, Ø. (1997). Entrepreneurship among business graduates: Does a major in entrepreneurship make a difference? *Journal of European Industrial Training, 21*(4), 154–160.
Kulicke, M. (2014). *15 Years of Exist "University-based start-up programmes, Working paper from the scientific research supporting the "*. Karlsruhe: EXIST – University-based start-up programmes.
Leiva, J. C., Mora-Esquivel, R., O-Cordero, D., Picado-Arroyo, R., & Solís, M. (2021). The entrepreneurial activity of university students in Costa Rica: The role of the university ecosystem. *International Journal of Intellectual Property Management*. https://doi.org/10.1504/ijipm.2020.10036959. in-press.
Lortie, J., & Castogiovanni, G. (2015). The theory of planned behavior in entrepreneurship research: What we know and future directions. *Int Entrep Manag J, 11*, 935–957. https://doi.org/10.1007/s11365-015-0358-3
Martin, B. C., McNally, J. J., & Kay, M. J. (2013). Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes. *Journal of Business Venturing, 28*(2), 211–224. https://doi.org/10.1016/j.jbusvent.2012.03.002
Miller, D. J., & Acs, Z. J. (2017). The campus as entrepreneurial ecosystem: The university of chicago. *Small Business Economics, 49*(1), 75–95.
Mutsuddi, I. (2012). Managing human resources in the global context. In *New age international*. New Age International (P) Ltd. ISBN 10: 812243391X/ISBN 13: 9788122433913.
Nabi, G., Linan, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The impact of entreprenership education in higher education: A systematic review and research agenda. *Academy of Management Learning & Education, 16*(2), 277–299.
Nielsen, S. L., & Lassen, A. H. (2012). Identity in entrepreneurship effectuation theory: A supplementary framework. *International Entrepreneurship and Management Journal, 8*(3), 373–389. https://doi.org/10.1007/s11365-011-0180-5
Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGrawHill.
O'Shea, R. P., Allen, T. J., Morse, K. P., O'Gorman, C., & Roche, F. (2007). Delineating the anatomy of an entrepreneurial university: The Massachusetts institute of technology experience. *R&d Management, 37*(1), 1–16.
Oftedal, E. M., Iakovleva, T. A., & Foss, L. (2018). University context matter: An institutional perspective on entrepreneurial intentions of students. *Education + Training, 60*(7/8), 873–890. https://doi.org/10.1108/ET-06-2016-0098
Osborne, S. W., Falcone, T. W., & Nagendra, P. B. (2000). From unemployed to entrepreneur: A case study in intervention. *Journal of Development Entrepreneurship, 5*(2), 15–136.
Pacheco, D. F., York, J. G., Dean, T. J., & Sarasvathy, S. D. (2010). The coevolution of institutional entrepreneurship: A tale of two theories. *Journal of Management, 36*(4), 974–1010.
Patterson, N., & Mavin, S. (2009). Women entrepreneurs: Jumping the corporate ship and gaining new wings. *International Small Business Journal, 27*(2), 173–192. https://doi.org/10.1177/0266242608100489

Patterson, M. G., West, M. A., Shackleton, V. J., Dawson, J. F., Lawthom, R., Maitlis, S., & Wallaces, A. M. (2017). Innovation linked references are available on JSTOR for this article: Validating the organizational climate measure : Links to managerial practices. *Productivity and Innovation, 26*(4), 379–408. https://doi.org/10.1002/job.312

Peña, I., Guerrero, M. y, & González-Pernía, J. L. (2016). *Global entrepreneurship monitor. Informe GEM españa 2015*. Santander: Editorial de la Universidad de Cantabria.

Pittaway, L., & Cope, J. (2007). Simulating entrepreneurial learning: Integrating experiential and. *Management Learning, 38*(2), 211–233. Retrieved from http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Simulating+Entrepreneurial+Learning+:+Integrating+Experiential+and+Collaborati+...#1.

Porter, M., Sachs, J., & McArthur, J. (2002). Executive summary: Competitiveness and stages of economic development. In M. Porter, J. Sachs, P. K. Cornelius, J. W. McArthur, & K. Schwab (Eds.), *The global competitiveness report 2001–2002* (pp. 16–25). New York: Oxford University Press.

Raposo, M., & Paço, A. (2011). Entrepreneurship education: Relationship between education and entrepreneurial activity. *Psicothema, 23*(3), 453–457. Retrieved from http://www.psicothema.com/pdf/3909.pdf.

Rasmussen, E., & Borch, O. J. (2010). University capabilities in facilitating entrepreneurship: A longitudinal study of spin-off ventures at mid-range universities. *Research Policy, 39*(5), 602–612.

Reinartz, W., Haenlein, M., & Henseler, J. (2009). An empirical comparison of the efficacy of covariance-based and variance-based SEM. *International Journal of Research in Marketing, 4*(26), 332–344.

Reynolds, P. D., Hay, M., & Camp, S. M. (1999). *Global entrepreneurship monitor: 1999 executive report*. Babson College, London Business School and the Kauffman Center for Entrepreneurial Leadership.

Rideout, E. C., & Gray, D. O. (2013). Does entrepreneurship education really work? A review and methodological critique of the empirical literature on the effects of university-based entrepreneurship education. *Journal of Small Business Management, 51*(3), 329–351.

Ringle, C. M., Wende, S., & Becker, J. M. (2015). SmartPLS 3, boenningstedt: SmartPLS GmbH. available at: www.smartpls.com.

Răulea, A. S., Oprean, C., & Țîțu, M. A. (2016). *International conference knowledge-based organization* (Vol. XXII) https://doi.org/10.1515/kbo-2016-0040, 1 2016, *XXII (1)*.

Sánchez, J. C. (2013). The impact of an entrepreneurship education program on entrepreneurial competencies and intention. *Journal of Small Business Management, 51*(3), 447–465.

Schneider, B., González-Romá, V., Ostroff, C., & West, M. A. (2017). Organizational climate and culture: Reflections on the history of the constructs in the journal of applied psychology. *J. Appl. Psychol., 102*, 468–482.

Schwarz, E. J., Wdowiak, M. A., Almer-Jarz, D. A., & Breitenecker, R. J. (2009). The effects of attitudes and perceived environment conditions on students' entrepreneurial intent: An Austrian perspective. *Education and Training, 51*(4), 272–291. https://doi.org/10.1108/00400910910964566

Sebora, T. C., Theerapatvong, T., & Lee, S. M. (2010). Corporate entrepreneurship in the face of changing competition: A case analysis of six Thai manufacturing firms. *Journal of Organizational Change Management, 23*(4), 453–470. https://doi.org/10.1108/09534811011055421

Sesen, H. (2013). Problemi postavljanja dijagnoze iritabilnog kolona u ambulanthoj praksi. *Education + Training, 55*(7), 624–640. https://doi.org/10.1108/ET-05-2012-0059

Sommer, L., & Haug, M. (2011). Intention as a cognitive antecedent to international entrepreneurship-understanding the moderating roles of knowledge and experience. *International Entrepreneurship and Management Journal, 7*(1), 111–142. https://doi.org/10.1007/s11365-010-0162-z

Souitaris, V., Zerbinati, S., & Al-Laham, A. (2007). Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. *Journal of Business Venturing, 22*(4), 566–591. https://doi.org/10.1016/j.jbusvent.2006.05.002

Van der Sluis, J., Van Praag, M., & Vijverberg, W. (2005). Entrepreneurship selection and performance: A metaanalysis of the impact of education in developing economies. *World Bank Economic Review, 19*(2), 225–261.

Walter, S. G., & Block, J. H. (2016). Outcomes of entrepreneurship education: An institutional perspective. *Journal of Business Venturing, 31*(2), 216–233. https://doi.org/10.1016/j.jbusvent.2015.10.003

Wang, S. M., Yueh, H. P., & Wen, P. C. (2019). How the new type of entrepreneurship education complements the traditional one in developing entrepreneurial competencies and intention. *Frontiers in Psychology, 10*, 2048.

Weber, R., Von Graevenitz, G., & Harhoff, D. (2009). *The effects of entrepreneurship education*. GESY Discussion Paper No. 269, Available at SSRN https://ssrn.com/abstract=1445085.

Welter, F., & Smallbone, D. (2011). Institutional perspectives on entrepreneurial behavior in challenging environments. *Journal of Small Business Management, 49*, 107–125. https://doi.org/10.1111/j.1540-627X.2010.00317.x

Zhang, Y., Duysters, G., & Cloodt, M. (2013). The role of entrepreneurship education as a predictor of university students' entrepreneurial intention. *International Entrepreneurship and Management Journal, 1–19*. https://doi.org/10.1007/s11365-012-0246-z

Zollo, L., Laudano, M. C., Ciappei, C., & Zampi, V. (2017). Factors affecting universities' ability to foster students' entrepreneurial behaviour: An empirical investigation. *Journal of Management Development, 36*(2), 268–285. https://doi.org/10.1108/JMD-06-2016-0093